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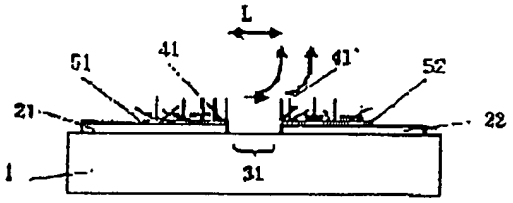
(54) ELECTRON EMISSION ELEMENT, ITS MANUFACTURE, AND IMAGE FORMING DEVICE USING THEREWITH

(57)Abstract:
PROBLEM TO BE SOLVED: To enhance efficiency, enhance reliability, enhance brightness, and enhance the uniformity of an image by forming at least part of an electron emission part formed between a pair of electrodes with a carbonaceous material containing carbon nanotube.
SOLUTION: A high resistance part 31 is formed between a pair of electrodes 21, 22 on a substrate 1, and carbon nanotubes 41, 41' of a good conductor having a thickness of 10 nm and a length of several ì m are arranged on the electrodes 21, 22 to form an electron emission part. When low and high potential voltages are applied across the electrodes 21, 22, electrons are emitted from the electrode 21 to the electrode 22, part of emitted electrons, scattered electrons or secondary electrons of the electrode 22 are attracted to an upper anode. Electric fields are especially converged on the tips of the carbon nanotubes 41, 41' in the vicinity of the high resistance part 31, and electrons are efficiently emitted at low voltage. Electron emission characteristics are rarely varied even in relatively low degree of vacuum, and use for a long time is made possible.



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